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EXAMINER

TSEGAYE, SABA

ART UNIT	PAPER NUMBER
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2662

12

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/234,518

Applicant(s)

HWANG ET AL.

Examiner

Saba Tsegaye

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-12,14-21,23-28 and 30-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-21 and 23-27 is/are allowed.
- 6) ☒ Claim(s) 1-3,5-12,28 and 30-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. Claims 1, 32, 33 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Manning et al. (US 6,519,266).

Regarding claims 1 and 37, Manning discloses, in Figs. 1 and 3, a communication system which has a plurality of mobile terminals (20) and a base station (14), each of the mobile terminals and/or the base station (20, 14, 12), comprising:

a MAC control sub-layer (204);

upper layers of the medium access control sub-layer (208, 206); and

a lower layer of the medium access control sub-layer (202),

wherein the medium access control sub-layer (204) is configured to perform self-basic functions or functions associated with the upper layers (208, 206) or lower layer (202) and wherein the medium access control sub-layer includes a common control channel group and a dedicated control channel group (column 7, lines 16-28).

Regarding claim 32, Manning discloses, in Figs. 1, 2 and 8, a method of operating a communication protocol between a bas station (14) and a plurality of mobile terminals (20) using medium access control sub-layers (204) in communication system, the MAC sub-layers being provided respectively in the base station (14) and mobile terminals (20), the method comprising;

performing, in each of the medium access control sub-layers (204), an initialization mode (302), an idle mode (300) and a radio resource allocation mode (304) in response to requests from upper layers thereof, wherein the radio resource allocation mode comprises:

sending a channel request message (302) from a corresponding one of the mobile terminals (20) to the base station (14) upon receiving a random access request message from a specific one of the upper layers of the corresponding mobile terminal (column 7, lines 38-46);

recognizing that a radio resource allocation operation has been completed (108), upon receiving a channel response message from the base station (14), and then proceeding to an activate wait state (302) (column 7, lines 47-52);

transferring a radio resource allocation request message to a lower layer (202) of the corresponding mobile terminal (20) (column 6, lines 35-50); and

informing the specific upper layer (206, 208) that a radio resource has been set, upon receiving a radio resource activation response message from the lower layer (202) (column 6, lines 35-50).

Regarding claim 33, Manning discloses, in Figs. 1, 4 and 8, a method of operating a communication protocol between a bas station (14) and a plurality of mobile terminals (20) using medium access control sub-layers (204) in communication system, the MAC sub-layers being provided respectively in the base station (14) and mobile terminals (20), the method comprising;

performing, in each of the medium access control sub-layers (204), an initialization mode (302), an idle mode (300) and a radio resource allocation mode(304) in response to requests from upper layers thereof, wherein the radio resource allocation mode comprises:

allocating a radio resource requested by a specific mobile terminal (304), and then sending a channel response message including allocated frequency information and channel allocation description information (the dedicated control channels include the dedicated singling

Art Unit: 2662

channel and the dedicated MAC channel) (column 7, lines 29-35) from the base station to the specific mobile terminal (306); and transferring information regarding the allocated radio resource to a lower layer of the base station to activate the lower layer (308) (column 7, lines 17-60).

Claim Rejections - 35 USC § 103

2. Claims 5-11, 38-44 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning in view of Cerwall (US 6,275,701).

Regarding claims 5 and 6, Manning discloses all the claim limitations as stated above (paragraph 1), except for the common control channel group includes: a synchronization channel; a broadcasting control channel for broadcasting available frequency information; a paging channel; a random access channel; and a forward access channel.

Cerwall teaches, in Fig. 2, that a common control channel includes: PCH, RACH, AGCH, SCH and the broadcasting control channel comprises a frequency correction channel.

It would have been obvious to one ordinary skill in the art at the time of the invention was made to include PCH, RACH, AGCH, SCH and FCCH, such as that suggested by Cerwall, in the common control channel group of Manning in order to minimize a fraction of completely lost speech connections in a telecommunications system (column 3, lines 25-65).

Regarding claim 7, Manning discloses all the claim limitations as stated above, (paragraph 1) except for dedicated control channel group includes: a stand alone dedicated control channel for transferring terminal association setup information and call setup

Art Unit: 2662

information; and an associated control channel for transferring power control information and handover information.

Cerwall teaches that a stand alone dedicated control channel used for signaling in connection with the establishment of a connection on a traffic channel, fast associated control channel for the immediate control of a traffic channel, and slow associated control channel for less urgent transmission of information regarding a traffic channel.

It would have been obvious to one ordinary skill in the art at the time of the invention was made to include a stand alone dedicated control channel and associated control channel, such as that suggested by Cerwall, in the dedicated control channel group of Manning in order to reduce the risk of a total interruption of a call in connection with handover (column 3, lines 25-65).

Regarding claims 8-11, Manning discloses all the claim limitations as stated above (paragraph 1). Further, Manning discloses, in Fig. 8, a MAC a third service 704 that can be performed on a network 10 fig.1, such as circuit data service or packet data service associated with a special quality of service (claimed quality monitoring and reporting function) (as in claim 8).

However, Manning does not expressly disclose the following functions: first channel control means for transferring information for synchronization between an originating end and terminating end, setting a stand alone dedicated control channel and performing a cell setting operation using the set control channel (as in claim 8); a synchronization control entity, a broadcast control entity (as in claim 9); a common control channel entity includes: a paging

Art Unit: 2662

control entity, a random access control entity, a response control entity (as in claim 10); the second channel control means includes: and a dedicated control entity and a traffic control entity (as in claim 11).

Cerwall teaches, in Fig. 2, that a common control channel includes: PCH, RACH, AGCH, SCH; the broadcasting control channel for controlling a broadcasting control channel for broadcasting general system information; a dedicated control entity for controlling the stand alone dedicated control channel; a traffic control entity for controlling a traffic channel (column 6, lines 14-39).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to include PCH, RACH, AGCH, SCH and SDCCH, such as that suggested by Cerwall, in the common control channel group of Manning in order to minimize a fraction of completely lost speech connections in a telecommunications system (column 3, lines 25-65).

Regarding claims 38, 39, 42, 44 and 47, Manning discloses all the claim limitations as stated above (paragraph 1), except for the common control channel group includes a broadcasting control channel, a paging channel, and synchronization channel, a forward access channel, and a random access channel.

Cerwall teaches, in Fig 2, that the common control channel group includes a broadcasting control channel, a paging channel, and synchronization channel, a forward access channel, and a random access channel (as in claims 38, 39, 42, 44 and 47). Further Cerwall teaches that a common control entity for controlling a random access channel and a forward access channel

Art Unit: 2662

(RACH, AGCH). A Stand-alone Dedicated control channel used for signaling in connection with the establishment of a connection on a traffic channel (as in claims 44 and 47).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to include a broadcasting control channel, a paging channel, and synchronization channel, a forward access channel, and a random access channel, such as that suggested by Cerwall, in the common control channel group of Manning in order to initiate a call or to send control information to all subscriber units, for example on how to communicate with the base station.

Regarding claims 40 and 41, Manning discloses the communications system, wherein the common control channel sets a stand-alone dedicated control channel between at least one of the mobile terminals and base station (column 7, lines 24-28).

Regarding claim 43, Manning discloses the communications system, wherein the dedicated control channel group includes a stand-alone dedicated control channel, an associated control channel and a traffic channel (column 7, lines 35-37).

3. Claims 2, 3, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning in view of Cheng et al. (US 6,393,008) and Korpela (US 5,946,634).

Manning discloses all the claim limitations as stated above (paragraph 1). Further, Manning discloses that MAC layer includes a null state (claimed lower channel activation/deactivation functions) (as in claim 3), a Ccontrol state (claimed a synchronization

Art Unit: 2662

information control function) (as in claim 3 and 36), a Ctraffic state (claimed a control information transfer function) (as in claim 2), a Dcontrol state (claimed a random access control information transfer function) (as in claim 2), and Dtraffic state (claimed a user information transfer function) (as in claim 2). Fig. 8 shows a MAC a third service 704 that can be any service that can be performed on a network 10 fig.1, such as circuit data service or packet data service associated with a special quality of service (claimed quality monitoring and reporting function) (as in claims 3).

However, Manning does not expressly disclose the following functions: framing/deframing functions; segmentation/reassembly functions (as in claim 2); functions of dividing a frame of a specific one of the upper layers into channels of the lower layer and vice versa (as in claims 2 and 35); a rate adoption function of adjusting a number of bits suitably for a radio frame (as in claim 2); and a cyclic redundancy check function, a function of detecting an error of a medium access control sub-layer frame (as in claim 2).

Cheng teaches, in Fig 2b, and 2c, that A MAC layer 106 generates one or more MAC frames to the multiplex layer 108 (claimed framing/deframing functions; segmentation or reassembly functions). Further, Cheng teaches that the MAC layer controls the resource allocation for each radio link protocol layer RLP, each RLP is monitored and controlled by the MAC for data frame transmissions to the multiplex layer (claimed functions of dividing a frame of a specific one of the upper layers into channels of the lower layer and vice versa) (column 3, line 55-column 4, line 67). Cheng teaches a rate adoption function of adjusting a number of bits suitably for a radio frame (column 4, lines 47-56).

Art Unit: 2662

It would have been obvious to one ordinary skill in the art at the time the invention was made to add more self-basic functions, such as that suggested by Cheng, in the MAC layer of self-basic functions of Manning in order to provide an efficient method and system for transmitting packet data over a cellular telecommunications network.

However, Manning in view of Cheng does not expressly disclose a cyclic redundancy check function, and a function of detecting an error of a medium access control sub-layer frame.

Korpela discloses a mobile communications system in which a mobile terminal is adapted to communicate in a common physical layer format, and to utilize two or more different higher-level communication protocols, and further includes a control device for selecting one of the higher-level formats. Further, Korpela teaches a cyclic redundancy check function, and a function of detecting an error of a medium access control sub-layer frame (column 4, lines 4-8).

It would have been obvious to one ordinary skill in the art at the time the invention was made to add a cyclic redundancy check, such as that suggested by Korpela, in the system of Manning in view of Cheng in order to enhance accuracy and to increase transmission speed.

4. Claims 12, 45, 46, 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning in view of Cerwall as applied to claims 5 and 44 above, and further in view of Cheng and Korpela.

Regarding claim 12, Manning in view of Cerwall discloses all the claim limitations as stated above (paragraph 2), except for the traffic control entity is adapted to vary a rate of the traffic channel according to a predetermined service type (as in claim 12).

Cheng teaches that the allocation of traffic channels among multiple users may be dynamically changed by the scheduling function, depending upon the current load conditions of the network.

It would have been obvious to one ordinary skill in the art at the time the invention was made to substitute the traffic control entity that adapts a vary rate of the traffic channel according to a predetermined service type, such as that suggested by Cheng, to the traffic control channel of Manning in view of Cerwall in order to provide higher data transfer rate and to guarantee quality of service.

Regarding claims 45, 46, 48 and 49, Manning in view of Cerwall discloses all the claim limitations as stated above (paragraph 2). Further, Manning discloses that MAC layer includes a null state (claimed lower channel activation/deactivation functions), a Ccontrol state (claimed a synchronization information control function), a Ctraffic state (claimed a control information transfer function), a Dcontrol state (claimed a random access control information transfer function), and Dtraffic state (claimed a user information transfer function). Fig. 8 shows a MAC a third service 704 that can be any service that can be performed on a network 10 fig.1, such as circuit data service or packet data service associated with a special quality of service (claimed quality monitoring and reporting function).

However, Manning in view of Cerwall does not expressly disclose the following functions: framing/deframing functions; segmentation/reassembly functions; functions of dividing a frame of a specific one of the upper layers into channels of the lower layer and vice versa; a rate adoption function of adjusting a number of bits suitably for a radio frame; and a

Art Unit: 2662

cyclic redundancy check function, a function of detecting an error of a medium access control sub-layer frame.

Cheng teaches, in Fig 2b, and 2c, that A MAC layer 106 generates one or more MAC frames to the multiplex layer 108 (claimed framing/deframing functions; segmentation or reassembly functions). Further, Cheng teaches that the MAC layer controls the resource allocation for each radio link protocol layer RLP, each RLP is monitored and controlled by the MAC for data frame transmissions to the multiplex layer (claimed functions of dividing a frame of a specific one of the upper layers into channels of the lower layer and vice versa) (column 3, line 55-column 4, line 67). Cheng teaches a rate adaptation function of adjusting a number of bits suitably for a radio frame (column 4, lines 47-56).

It would have been obvious to one ordinary skill in the art at the time the invention was made to add more self-basic functions, such as that suggested by Cheng, in the MAC layer of self-basic functions of Manning in order to provide an efficient method and system for transmitting packet data over a cellular telecommunications network.

Manning in view of Cheng does not disclose expressly a cyclic redundancy check function, and a function of detecting an error of a medium access control sub-layer frame. Korpela discloses a mobile communications system in which a mobile terminal is adapted to communicate in a common physical layer format, and to utilize two or more different higher-level communication protocols, and further includes a control device for selecting one of the higher-level formats. Further, Korpela teaches a cyclic redundancy check function, and a function of detecting an error of a medium access control sub-layer frame (column 4, lines 4-8).

It would have been obvious to one ordinary skill in the art at the time the invention was made to add a cyclic redundancy check, such as that suggested by Korpela, in the system of Manning in view of Cheng in order to enhance accuracy and to increase transmission speed.

5. Claims 28, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning in view of Cerwall as applied to claims 5-11, 38-44 and 47 above, and further in view of Cheng.

Regarding claim 28, Manning in view of Cerwall discloses all the claim limitations as stated above (paragraph 2). Further, Manning discloses, in Fig. 4, a MAC layer 204 includes a null state 300 (claimed an idle mode); a Ccontrol state 302 (claimed initialization mode); and a Ctraffic state 304 (claimed a radio resource allocation mode). Further, Manning discloses that in Ccontrol state 302, common control channels are provided and monitored (claimed scanning a synchronization channel). As shown in Fig. 2, the MAC layer begins operation from the null state 300. When the MAC layer 204 is activated, execution advances to the Ccontrol state 302 (claimed transferring synchronization information to a lower layer). If the MAC layer 204 is deactivated, execution returns to the null state 300 (claimed proceeding to the idle mode if no valid synchronization information is received).

Cerwall, further, teaches, in Fig. 2, that a common control channel comprises a synchronization channel SCH.

However, Manning in view of Cerwall does not expressly disclose the valid synchronization information includes base station identification information.

Art Unit: 2662

Cheng teaches that a MAC control channel function to broadcast control information to mobile stations holding a valid MAC-ID (column 6, lines 1-4).

It would have been obvious to one ordinary skill in the art at the time the invention was made to add base station identification information, such as that suggested by Cheng, in the synchronization information of Manning in view of Cerwall in order to identify a specific base station.

Regarding claims 30 and 31, Manning in view of Cerwall discloses all the claim limitations as stated above (paragraph 2). Further, Manning discloses, in Fig. 4, a MAC layer 204 includes a null state 300 (claimed an idle mode); a Ccontrol state 302 (claimed initialization mode); and a Ctraffic state 304 (claimed a radio resource allocation mode). Further, Manning discloses that common control channels are channels that are shared among many users.

Cerwall, further, teaches that the common channels are divided into broadcast channels and common control channels.

However, Manning in view of Cerwall does not expressly disclose identification number; comparing an identification number of the received system information with a system information identification number stored in a corresponding one of the mobile terminal; and updating the current system if the received system information is newly modified system information.

Cheng teaches that a MAC control channel function to broadcast control information to mobile stations holding a valid MAC-ID. Control messages may be MAC-ID specific or common to more than one MAC-ID (column 6, lines 1-31).

Art Unit: 2662

It would have been obvious to one ordinary skill in the art at the time the invention was made to add base station identification information, such as that suggested by Cheng, in the synchronization information of Manning in view of Cerwall in order to identify a specific base station.

Cheng does not expressly disclose a method that comparing an identification number and updating the current system.

However, Cheng teaches that to establish multiple virtual connections for MAC layer connection, each of multiple virtual connections established with one of the plurality of base stations and each associated with its own MAC-ID.

Therefor, it would have been obvious to one ordinary skill in the art at the time the invention was made to add a method that comparing an identification number and updating the current system if the received system information is newly modified system information in order to provide an efficient method and system for transmitting packet data over a cellular telecommunication network.

Allowable Subject Matter

6. Claims 14-21, and 23-27 are allowed.

Art Unit: 2662

Response to Arguments

7. Applicant's arguments with respect to claims 1-12, 14-21 and 23-28 and 30-49 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (703) 308-4754. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (703) 305-4744. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

ST
July 26, 2003



**JOHN PEZZLO
PRIMARY EXAMINER**